SOIL CONSERVATION SERVICE NEWS

REGION 4

COMPRISING STATES OF LOUISIANA, ARKANSAS AND TEXAS, EXCEPT HIGH PLAINS AREA

REGIONAL OFFICE--FORT WORTH, TEXAS

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TEXAS FIELD DAYS WELL ATTENDED

Soil Conservation Week Observed

More than 3000 persons attended soil conservation field days held on three project areas of the Soil Conservation Service in Texas during Soil and Water Conservation Week, August 7 to 13.

The first of the three field days was held at Temple on August 9; the second at Garland on August 10 and the last at Mount Pleasant on August 11.

In arranging for field days the Soil Conservation Service cooperated with the Texas Extension Service, Texas A. & M. College, the state department of vocational agriculture, East Texas Chamber of Commerce and the Texas Soil and Water Conservation Association.

Local field day sponsors were the Chambers of Commerce and soil conservation associations assisted by the Soil Conservation Service and other local agencies.

Each field day program included tours of the project areas and speaking programs.

At Temple the principal speakers were V.C. Marshall, president of the Texas Soil and Water Conservation Association; E. J. Kyle, dean of the school of agriculture, Texas A. & M. College and E. A. Wood, chairman of the Texas Planning Board.

J. W. Sargent, associate regional conservator for the Soil Conservation Service in Region 4; Dean Kyle, Mr. Marshall and Robert Manire, state director of vocational agriculture, were the principal speakers at Garland. E. M. Dorsey, chairman of the agricultural committee of the East Texas Chamber of Commerce, Mr. Sargent and Mr. Manire were the principal speakers at Mount Pleasant.

Kyle Stresses the Need for Proper Land Use

In his addresses at Temple and Garland Dean E. J, Kyle of the Texas A. & M. College pointed out that failure to develop and apply a sound land use program in the Blacklands of Texas has been a costly oversight.

"Texas has in round numbers 168,000,000 acres of land. There are approximately 75,000,000 acres in grazing land; 12,500,000 acres in woodland and 35,508,811 acres in cultivation," he said.

"The question of what types of crops and animals can be produced on this land so as to allow satisfactory or reasonable economic returns and at the same time increase, or at least maintain the fertility of the soil, is, in my judgment, our most important agricultural problem today.

"The solution of this highly important problem involves three fundamental factors. They are land utilization, preservation of our soil fertility and a safe and sane marketing program for our agricultural commodities.

"The fallacy of not developing and carrying out a wise and sound land utilization program in the beginning of our agricultural development is strikingly illustrated in a study of the History of agriculture in the Blackland belt of Texas.

"Some 60 or 70 years ago the Blacklands, composed of some 11,000,000 acres of land extending from the Red River on the north to San Antonio on the south, was one of the largest and most fertile bodies of upland soil in the world. It was unfenced and unbroken. For many centuries nature had been adding to the fertility of this magnificent body of land by the decomposition of the crops of luxuriant grass that grew on it annually.

"Now witness the work of man within a period of 60 years, operating without a land utilization program. This land was first fenced, then broken and planted to crops. Since that day until a few years ago cotton constituted from 60 to 70 per cent of the crops planted. The results of this one-crop system represent one of the deepest agricultural tragedies ever recorded.

"Practically all fences have disappeared from these lands due to the fact that very little livestock has been carried.

"Countless tons of the most fertile soil have been washed into our streams because of the fact that where native sod was removed little or no effort was made to prevent soil erosion through the use of terraces or strip crops.

"It has been estimated that the loss the state as a whole has sustained from soil erosion would average over $25,000,000 annually for the past 30 years. I hold that this loss cannot be adequately measured in dollars and cents because soil that produces food and is capable of producing food and raiment a thousand years from now is priceless. The most alarming feature of this situation is that this loss has been gaining momentum at a very alarming rate as the years go by.

"The washing away of the soil, the destruction of the organic matter, the increase in insect pests and the development of the root rot, have had a tremendous effect upon the production of cotton, as is shown by a comparison of the average yield of lint cotton per acre for the ten year periods during 30 years from 1899 to 1928:

Average Yield of Lint Cotton in the Blacklands of Texas

Year	Yield per acre	Year	Yield per acre	Year	Yield per acre
1899	223 lbs	1909	148 lbs.	1919	139 lbs.
1900	299 "	1910	168 "	1920	196 "
1901	201 "	1911	217 "	1921	107 "
1902	191 "	1912	249 "	1922	135 "
1903	181 "	1913	182 "	1923	160 "
1904	222 "	1914	191 "	1924	150 "
1905	187 "	1915	157 "	1925	125 "
1906	242 "	1916	193 "	1926	133 "
1907	129 "	1917	162 "	1927	118 "
1908	219 "	1918	125 "	1928	151 "
Av.	209.4	Av.	179.2	Av.	141.4

Marshall Stresses Need for Cooperative Action

V. C. Marshall, president, Texas Soil and Water Conservation Association said at Temple and Garland:

"Single-handed combat with erosion can never be a success. The only style of attack which does hold promise of success is to begin where erosion begins at the crests of the hills and work down, field by field, to the stream below. In this kind of a program all owners of land in an affected area must work in unison and must bring into use all of the known practical means of saving soil and water adapted to the area under treatment.

"For practical reasons this must be done in such a manner as will maintain or increase the individual farmer's income. In this kind of a program each piece of land will be put to the use for which it is best adapted.

"Strip crops, contour tillage, terraces and other measures must be employed for the protection of sloping fields with soil saving and soil improving rotations used to displace soil-depleting and erosion-permitting crops.

"Only through cooperative effort, neighbor with neighbor, community with community, with the assistance of all agricultural agencies can the enormous losses to soil and destructive floods be controlled.

"The state soil conservation districts law is the machinery which promises to provide for the cooperation of all agencies in a manner acceptable in a democracy.

"The basic principle underlying the districts law is that the responsibility for formulating and carrying out a definite erosion control rests with the landowner or operator. No district can be formed unless the landowners want it and then only after they have so declared their wishes at an election. Once a district is formed, control of its affairs rests in the hands of local people."

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THIRTY-SIX SOIL CONSERVATION DISTRICTS NOW IN OPERATION IN THE U. S.

Thirty-six soil conservation districts now are in operation in nine of the 26 states that have adopted soil conservation districts laws, according to H. H. Bennett, Chief of the Soil Conservation Service.

The districts are in operation in the following states:

Arkansas	10 districts
Colorado	1 district
Georgia	4 districts
North Carolina	5 districts
North Dakota	3 districts
South Carolina	4 districts
South Dakota	4 districts
Utah	1 district
Nevada	4 districts

The 36 districts embrace a land area of more than 35,000,000 acres.

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PLAN DISTRICTS WORK IN LOUISIANA

Members of the Louisiana state soil conservation committee met at Louisiana State University, Baton Rouge, on August 10 to outline procedure to be followed in the organization and operation of state soil conservation districts under authority granted in the districts law enacted by the legislature on June 27. The law became effective on July 27.

Members of the state committee are J. G. Lee, dean of the college of agriculture, L. S. U., chairman; J. W. Bateman, director of Louisiana Extension Service and C. T. Dowell, director of Experiment Stations.

It was decided at the meeting that the Extension Service will be responsible for assisting farmers in the orgainzation of districts and for conducting educational work in districts showing the landowners the value of the recommended practices. It is expected that the Soil Conservation Service will be called on to assist in the actual operations program after districts are set up.

Several petitions already have been received by the state committee from groups of farmers seeking organization of districts on a watershed basis.

Dean Lee spoke to all farmers enrolled in the annual farmer's short course at the University during the week of August 8-12 and explained the districts law and its operation. County agents from all Louisiana parishes were present at the short course and heard Dean Lee.

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SOIL CHARACTERISTICS AS THEY INFLUENCE INFILTRATION AND RUN-OFF

By R. M. Marshall, Soil Scientist

The rate of infiltration of the soils throughout Region 4 must be given due consideration in connection with the planning of farms for soil and water conservation.

Many factors influence infiltration, such as the physical characteristics of the soils, slope gradient, covers, slope length and, on cultivated land, the type and system of agriculture.

The physical characteristics of the soils exert a very great influence on the rate of infiltration and run-off.

This fact was well illustrated by observations made in the highlands section of the Mountains and Basins Soils area in West Texas

after three days of rain last June. Observations revealed that on Brewster gravelly loam and Brewster stony loam occurring on slopes ranging up to 20 per cent, moisture had penetrated to a depth as much as 30 inches, even though the grass cover was sparse.

On a nearly level area of Reagan silty clay loam that received as much water, or possibly more due to run-off from higher lying areas, the penetration was only 2 to 3 inches even though the grass cover was denser than on the Brewster soils. This can be accounted for only by the physical make-up of the soils. The Brewster soils are of coarse texture, open, and are capable of taking water readily while the Reagan soils are of fine texture, seal over quickly, and take up water slowly. The first rain falling on the Reagan silty clay loam, or similar soils, immediately picks up sufficient soil particles which envelop the rain drop; it proceeds to roll off the surface and at the same time causes a pore clogging effect on the immediate soil surface. If the water could be held in contact with this heavy soil for a period, it would take up, and hold, more water than the more open, coarser soil. This is true since the Reagan silty clay loam is made up of a high percentage of very small soil particles (silt and clay), and as these particles of silt and clay fit together to form the soils, there are many combined air and water spaces available to take up water. While the heavier soils have more combined air and water space, due to the size of the soil particles, than the coarser sandy soils, the individual spaces are much smaller than in the sands and air and water movements are slower; consequently, the rate of infiltration is slower on heavy soils and run-off is considerably higher on heavy, fine textured soils.

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EVALUATION STUDIES MADE AT SAN ANGELO

Evaluation studies which have been in progress at the San Angelo project for the past year show:

Conservation measures, principally contour ridging and controlled grazing have increased the cover of grasses on pasture land during 1937 by 20 per cent over existing cover in 1936. The maximum increase on any one pasture contour ridged was 162 per cent.

During 1937 terracing in conjunction with contour tillage increased cotton yields 17 per cent or 34 pounds of lint cotton to the acre in comparison with unterraced fields. Terraces controlled erosion and conserved all moisture that has fallen since the heavy rains of September 1936.

These studies have been conducted to determine the results of terracing, strip cropping, the use of extra water on level terraces, water spreading devices and pasture conservation measures.

The studies consist of vegetative yield studies, moisture penetration and moisture content tests, studies of soil movement and studies of vegetative types and rate of spread as affected by conservation measures on pasture land.

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CONSERVATION WORK PROGRESSES RAPIDLY IN ARKANSAS DISTRICTS

More than 337 landowners and operators who farm 44,802 acres of land located within the boundaries of the 10 state soil conservation districts now in operation in Arkansas have entered into cooperative agreements with the supervisors of these districts to obtain assistance in establishing complete and coordinated conservation farming systems on their farms.

As of June 30, 1938, conservation surveys had been completed on 2,000,000 of the more than 4,000,000 acres of farmland located within district boundaries. There are 35,190 farms located in the districts.

Approximately 5000 farmers in the district areas have submitted applications to the supervisors requesting that their farms be planned for conservation. To date, Soil Conservation Service technicians assisting the district supervisors have planned more than 3000 farms for conservation systems.

It is estimated that more than 5000 farmers have attended various educational meetings called in the districts by the supervisors to acquaint landowners and operators with the essentials of a complete erosion control and conservation farming system. The Arkansas Extension Service, the Soil Conservation Service and other state and federal agencies have assisted the supervisors in the educational work.

On the basis of 324 cooperative agreements affecting 41,462 acres of land, the owners and operators are planning to retire 6000 acres of badly eroded land, land located on slopes too steep for profitable or safe cultivation or land made up of easily eroded soils from clean tilled crops to pasture, meadow or woodland, 3670 acres going into permanent pasture, 1838 to meadow, 120 to woodland, 114 to orchards and vineyards and 107 to wildlife havens or other miscellaneous use.

Retirement of cultivated land and clearing of woody pastures will increase pasture area from 9920 to 16,724 acres. Protection from fire and grazing will be afforded 9260 acres of woodland. Permanent meadow will be increased from 1178 acres to 3392 acres.

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PASTURE DEVELOPMENT IN EROSION CONTROL

By W. M. Nixon, Assistant Agronomist

More than 105,349 acres of land formerly in cultivation on cooperating farms in Region 4 are being retired from clean tilled crops and sodded to grass for pasture. Some 26,552 additional acres of retired land are being utilized through the establishment of meadows.

This land use change is being effected because it constitutes the best utilization of this land from an erosion control as well as and economic standpoint. Every effort should be made to encourage the development and improvement of pasture areas so that the farmer can realize the greatest possible economic return from land so utilized.

Most of the pasture land, both old and newly established, is low in fertility and organic matter and is in need of adapted pasture legumes to supplement grass for grazing.

On those project areas where there is not a sufficient acreage of improved pastures to adequately demonstrate the possibility of pasture development a number of five-acre demonstration plots to be given a complete pasture treatment are being established. Treatment will include seeding with adapted pasture legumes and grasses, application of commercial fertilizer and barnyard manure, control of weeds and brush and properly controlled grazing.

Results at the Hope, Arkansas Branch Experiment Station show that a good Bermuda grass pasture, fertilized with phosphate and overseeded with adapted legumes produced an annual net gain of approximately $20 per acre when grazed by beef cattle. The unfertilized pasture produced about one half as much cash return per acre.

A change from one-acre to five-acre demonstrations has been made due to the fact that the increased carrying capacity of these small areas compared with untreated pasture has not presented a convincing contrast to the farmer.

It is believed that once the five-acre pasture improvement demonstrations are established on a few farms in each camp or project area that the profitableness and effectiveness in controlling erosion can be readily demonstrated. The desire for pasture improvement will then be spread more readily to neighboring farms.

Erosion control and land utilization are closely related. The land owner can be shown that he can realize a profit from good pasture management and at the same time control erosion.

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LOUISIANA PLANS WINTER COVER CROP PROGRAM

Indications are that the record 300,000 acres of Louisiana farm land planted to winter cover crops last fall may be increased this year.

Some 20,000 acres of winter cover crops were planted on farms under cooperative agreement with the six projects and 11 CCC camps last year. The majority of these crops were legumes - bur clover, vetch and Austrian winter peas.

More than 619 acres were planted to bur clover on co-operating farms in Louisiana last year in seed plots of one to two acres. This figure does not include fields planted solid to bur clover. Nearly all plots reseeded, and 128 were harvested, the seed yield being nearly 8000 bushels, an average of better than 60 bushels to the acre.

Normally a one-acre seed plot will produce in the neighborhood of 75 bushels of seed in the bur, enough to reseed 15 acres. The farmers who harvested their one-acre seed plots plan to plant as many as 15 acres to bur clover this fall. Three varieties of bur clover are being used - Early Southern Giant, California Bur and Common Southern Bur. There is, however, a definite trend toward the adoption of Early Southern Giant because it matures from two to three weeks earlier, allowing it to be turned under earlier in the spring. Another advantage is that Early Southern produces a greater tonnage of green matter.

A number of farmers have indicated that they plan to plant fields solid to bur clover and leave balks in the fields next spring when they get ready to plant corn. Corn will be planted in six to seven foot rows so that clover strips can be left. This system is being used because, in most instances, the clover seed do not mature early enough to permit turning under of the clover crop ahead of corn planting time. Under this plan the strips can be left long enough to permit the seed to ripen.

Ordinarily peas will be planted in the strips after clover seed have matured. When corn has been gathered in the fall the clover seed matured in the balks will come back and provide another winter cover crop of clover. It has been found that bur clover will reseed itself for as many as three years.

Farmers are so favorably impressed by the value of bur clover as a winter cover and soil improving crop that they plan to increase the acreage devoted to this crop each winter by scattering seed from their seed plots on additional farm acreage.

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EROSION CONTROL AND WILDLIFE CONSERVATION

By Homer G. Towns, Regional Biologist

Soil conservation and wildlife conservation are inseparable because both are dependent to a large extent upon vegetation.

Most of the leaders in the field of wildlife conservation agree that the two factors mainly responsible for the rapidly decreasing wildlife populations are: 1) Depleted wildlife habitats through the destruction of food and cover plants, and 2) insufficient regulations covering the increase from each year's wildlife crop.

The first of these factors can be definitely associated with soil erosion. Past practices of burning woodlots, pastures, fence rows, stalks and weeds on cultivated fields, overgrazing of both pastures and woodlots, putting steep slopes into cultivation, and planting large open fields to cotton or corn year after year, have all been, in some degree, responsible for increasing the erosion problem. Such practices have reduced timber, crop, and pasture yields. These same practices have virtually destroyed all desirable wildlife habitats in most agricultural sections. The type of vegetation that will adequately support desirable wildlife populations no longer exists. The same practices that have permitted erosion have also destroyed the wildlife habitats. Therefore, is it not logical to assume that the vegetative erosion control program as advocated by the Soil Conservation Service could easily be made to include practices that would help preserve wildlife?

The main objective of the Soil Conservation Service, is, of course, control of erosion, but wildlife conservation can be made to become one of the valuable by-products of erosion control work. Judicious grazing of pasture lands, elimination of fire and grazing from woodlands, elimination of fire from fence rows, stalkfields, etc., strip cropping, meadow strips, cover crops, vegetative gully control, and new tree, shrub, and vine plantings on lands retired from cultivation are all erosion control practices that help to establish desirable wildlife habitats. (Through the establishment of a permanent type of vegetation on the more than 15 million acres of sub-marginal lands in Region 4, the wildlife habitats will be greatly improved.)

It has been conservatively estimated (by the Biological Survey) that the present day wildlife population is responsible for business revenues of more than $1,031,000,000 annually. The birds are worth several million dollars more to man in his fight against insects. The sport and recreational value derived from wildlife cannot be measured in dollars and cents.

If we can re-establish wildlife habitats that will support reasonable populations where today merely a remnant of a population exists, we will not only control the erosion, but will increase business revenues and other pleasures that are derived from wildlife, and will help to preserve this valuable natural resource for future generations.

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